*REMARKS*

In response to the Office Action mailed February 10, 2005, Applicants amend their application and request reconsideration. No claims are cancelled and new claims 7-10 are added so that claims 1-10 are now pending.

The Examiner pointed out informalities in the two independent claims, claims 1 and 4, that were examined. These errors are regretted and are corrected in this Amendment. The language concerning the relative positioning of the upper and lower cladding layers with regard to the active layer is now accurate. Clearly, the Examiner understood the subject matter intended to be claimed as there was no error in examining the intended subject matter. In addition to these corrections, some non-uniformities between claims that are similar in format were noted and corrected.

Independent claims 1 and 4 were rejected as anticipated by Murayama (U.S. Patent 6,424,668). This rejection is respectfully traversed.

Rejection of Claim 4

Turning first to the second examined independent claim, claim 4, Murayama cannot possibly anticipate that claim. The semiconductor laser described in claim 4 includes an active layer sandwiched by a lower cladding layer and a first upper cladding layer. In addition, a second upper cladding layer is located on the first upper cladding layer. Unlike the semiconductor laser of claim 1, there is no requirement for an intervening etching stopper layer in the structure claimed in claim 4. Further, the second upper cladding layer has a composition, i.e., material, different from the material of the first upper cladding layer yet has a refractive index within ± 5 percent of the refractive index of the first upper cladding layer.

There are no specific comments in the Office Action directed to claim 4. Rather, in the rejection for anticipation of claims 1 and 4, all of the comments seem to pertain to claim 1, a semiconductor laser structure that must include an etching stopper layer. Therefore, it appears that the differences between claims 1 and 4 may have been overlooked in the examination.

In rejecting claim 4, the Examiner directed attention to Figures 1(A)-1(C) of Murayama. Applicants agree that in the structure described there, there is a sequential arrangement of a lower cladding layer 18, an active layer 20, a first upper cladding layer 22, an etch stop layer 24, and a second upper cladding layer 26 having a stripe shape. However, it is also apparent from the description in Murayama that the first and second upper cladding

layers always have the same composition, i.e., are made of the materials. In this specific example of Murayama those materials are InGaAlP.

For anticipation, a single reference must disclose every element of a claimed invention. Since the first and second upper cladding layers in Murayama have the same composition, unlike the different compositions of corresponding layers in the semiconductor laser device of claim 4, that rejection of claim 4 is erroneous and must be withdrawn.

Rejection of Claims 5 and 6

Claims 5 and 6, which depend from claim 4, were rejected as unpatentable over Murayama in view of Shima et al (U.S. Patent 5,420,066, hereinafter Shima et al). This rejection is respectfully traversed.

It is apparent that the rejection of claims 5 and 6 is founded upon the assertion that claim 4 is anticipated by Murayama. Since the rejection of claim 4 is erroneous, it follows that the rejection of claims 5 and 6 cannot remain upon the withdrawal of the rejection of claim 4.

Amendment of Claims 1 and 4 and Addition of New Claims

Claim 1, as examined, is directed to a semiconductor laser structure including an active layer sandwiched by a lower cladding layer and a first upper cladding layer. In addition, a second upper cladding layer having a stripe shape is opposite the active layer and the first upper cladding layer, but separated from the first upper cladding layer by an etching stopper layer. An important feature of the invention, as expressly described in the patent application is that while the etching stopper layer has a different composition from the first and second upper cladding layers, it has a refractive index nearly equal to the refractive index of each of the lower, first upper, and second upper cladding layers.

An example of such a structure is described at page 9 of the patent application. In that particular structure, the first and second upper cladding layers are AlGaInP and the etching stopper layer is $Al_xGa_{1-x}As$. In that preferred embodiment x equals 0.7 but it is pointed out, for example at pages 9 and 12 of the patent application, that x can range from 0.45 to 0.9.

The refractive index of $Al_xGa_{1-x}As$ when x is 0.7 is approximately 3.39, see the patent application at page 9, lines 16-19. The refractive index of the material when x is 0.45 is about 3.57 and when x is 0.9, the refractive index is 3.24. See the patent application at page 12, lines 2-4. Thus the disclosed variations in composition of the etching stopper layer produce a variation in refractive index of approximately ± 5% relative to a preferred

aluminum composition of 0.7. On that basis, claims 1 and 4 are amended to express this quantitative relationship.

In addition, claims 7 and 8 are added, depending from claims 3 and 8, respectively, to encompass the range of compositions described in the patent application at page 9 and to describe specifically what is cited as the preferred embodiment. Since the same materials are described with respect to the second embodiment at pages 14-16 of the patent application, new claims 9 and 10, similar to claims 7 and 8, are also added to the patent application but ultimately depending from claim 4.

Rejection of Claim 1

Applicants agree that Murayama describes a semiconductor laser having a lower cladding layer and first and second upper cladding layers with an intervening etch stop layer. However, there is no description in Murayama of the relationship between the refractive indexes of the materials of those layers. In other words, the invention as defined by amended claim 1 is clearly not disclosed by Murayama. Therefore, the rejection of examined claim 1 as anticipated by Murayama cannot be maintained with regard to amended claim 1.

Rejection of Claims 2 and 3

Claims 2 and 3, like claims 5 and 6, were rejected as unpatentable over Murayama in view of Shima. This rejection is respectfully traversed. As conceded in the rejection, the materials described in claim 2 for the particular layers of the semiconductor laser of claim 1 are not disclosed in Murayama. Reliance was placed upon Shima as describing the material employed in the etching stopper layer of the invention. However, even if it is assumed, for the sake of argument only, that one would employ AlGaAs as the etching stopper layer material in Murayama for the reasons cited by the Examiner, the refractive index relationship would still not be established by any potential modification of Murayama with Shima. Therefore, the rejection made with respect to examined claims 2 and 3 cannot be maintained as to the claims 2 and 3 presented here.

It follows that dependent claims 3, 6, 7, 8, 9, and 10 likewise cannot be obvious in view of any possible modification of Murayama with Shima.

Conclusion

Upon reconsideration, all claims now pending should be allowed.

Respectfully submitted,

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